Doctoral program – Symbiosis International University

RESEARCH PROPOSAL

STUDY OF

SUPPLY RISK MANAGEMENT PRACTICES

IN INDIA

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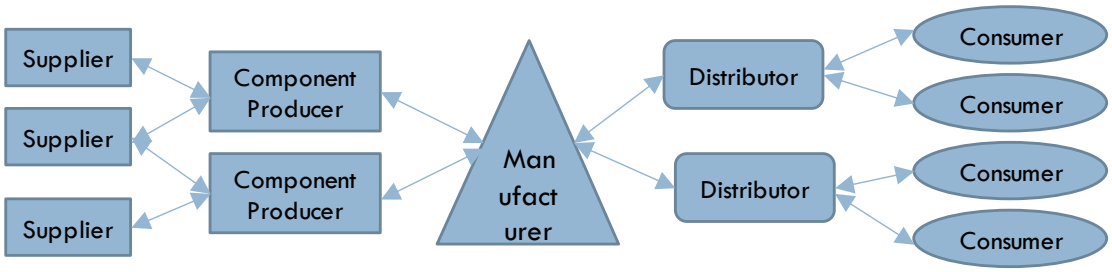
STUDY OF SUPPLY RISK MANAGEMENT PRACTICES IN INDIA

1. MOTIVATION:

Supply Chain Management is the management of the **flow of materials, information and funds** across the entire supply chain, i.e., from suppliers to component producers to final assemblers to distributors (warehouses and retailers), and ultimately to the consumer.



Important **objectives of supply chain** are Responsiveness and Efficiency.

Responsiveness is the ability of the firm to respond to customer orders in a timely manner. This benefits the end customer by improved service levels and the company in the form of increased competitiveness.

Efficiency is a cost-related advantage. It helps the firm in the form of improved profitability and the customer in the form of lower prices.

But many **risks hamper the Supply Chain performance.**

Risk can be defined as

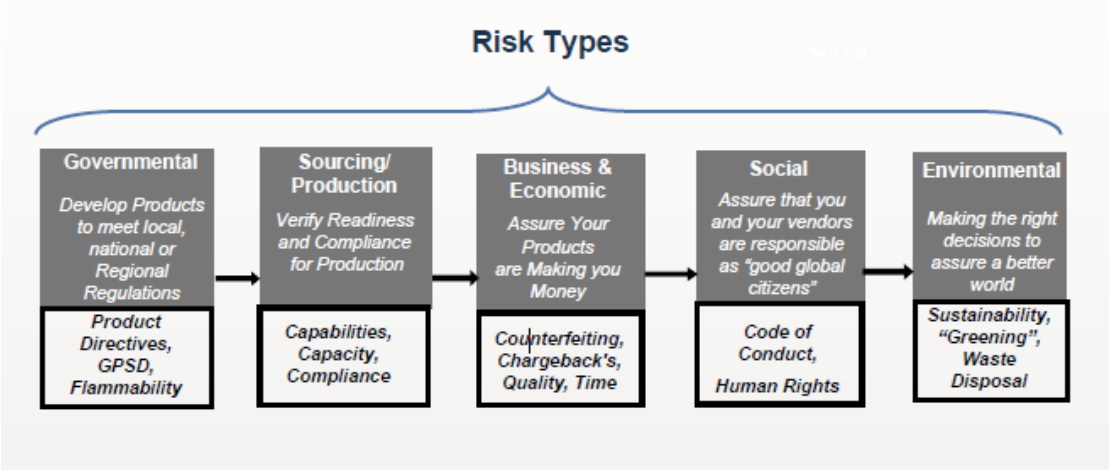
- ☐ Potential losses (if risk is realized, what losses will result and what is the significance of the **consequences** of the losses) *(Harland, 2003, Manuj and Mentzer, 2008 & Mitchell, 1995)* and

- The likelihood of those losses (the **probability of the occurrence** of an event that leads to realization of the risk) *(Omera Khan, Bernard 2007 & Ila Manuja & John Mentzer (2008))*

Because of current trends in Supply Chain Management, the **supply chain risks are increasing**. Some of these trends as pointed out by *Martin Christopher (2008)* are*:*

- The trend towards **just in time** and **lean** practices
- The trend towards **globalization**
- The trend towards **centralized** distribution and manufacturing
- The trend towards **outsourcing** of non-core business activities
- The trend towards **consolidation** of suppliers

The increased risks increase vulnerability of the organisation. Therefore it is important that the key risks be identified and managed. Supply Chain Risks can be of the following types (*Ian Dalgetty (2007)).*


Risk Types
Governmental
Develop Products to meet local, national or Regional Regulations
Product Directives, GPSD, Flammability
Sourcing/ Production
Verify Readiness and Compliance for Production
Capabilities, Capacity, Compliance
Business & Economic
Assure Your Products are Making you Money
Counterfeiting, Chargeback's, Quality, Time
Social
Assure that you and your vendors are responsible as "good global citizens"
Code of Conduct, Human Rights
Environmental
Making the right decisions to assure a better world
Sustainability, "Greening", Waste Disposal

2. PROBLEM STATEMENT:

This study aims to suggest a holistic model of Supply Risk Management program for the Indian Manufacturing sector.

3. SIGNIFICANCE OF THE PROBLEM:

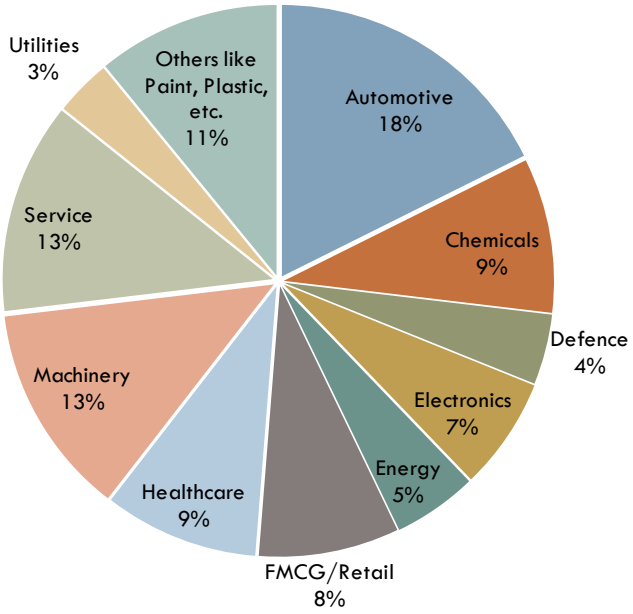
Amongst the supply chain partners, Suppliers play a crucial role because they help firms to improve supply chain cost, responsiveness, reliability and its competitiveness. Therefore management of **Sourcing (Supply) Risks** (i.e., delays in receipt of the material; or mismatch in quantity supplied; or material being of inferior quality or damaged; or the alteration in commercial terms delaying the supply) is very important.

India is becoming a manufacturing hub. Increasing demand in domestic as also in international markets is making it inevitable for the Indian industry to provide quality output on tight delivery schedules. Any delays in the supply would adversely impact the credibility and business potential of the industry.

The workable solution is to manage these supply delays by **managing the supply risks**. Supply Risk as defined by *Zsidisin (2002)* is, 'The potential occurrence of an incident associated with inbound supply from individual supplier failures or the supply market, in which its outcome results in the inability of the purchasing firm to meet customer demand or cause threats to customer life and safety.' This means non-availability of the required material at the required time in spite of the order being placed for input materials on time and delivery date / quantity / cost is agreed with the supplier well in advance as per the agreed norms.

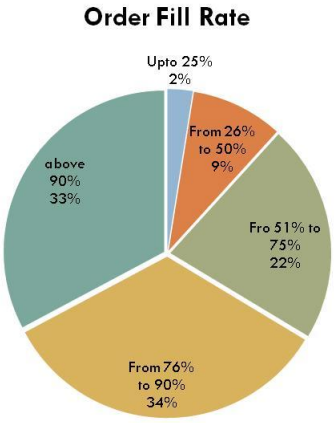
In order **to assess the viability of the topic** of 'Supply Risk Management', a survey was conducted in Indian industry. We received 119 responses from the major companies (more than 75% of these firms had turnover of more than Rs. 100 crores) from sectors like Automotive, Machinery, Service, FMCG/Retail, etc.

Primary Industry

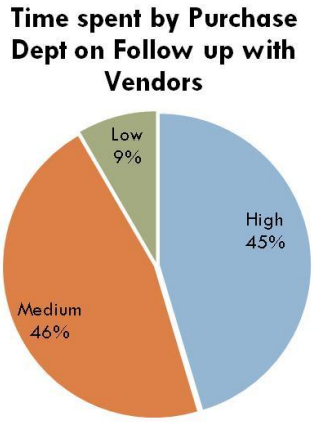


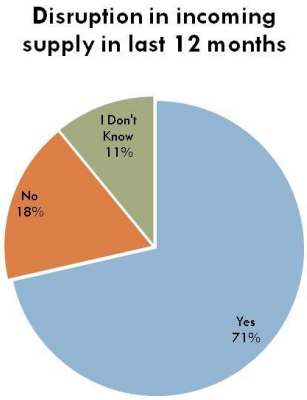
Important survey findings are:

- More than 65% of the respondents are having order fill rate of less than 90% which shows that **there is a gap between demand and supply**. Low order fill rate impact the customer satisfaction level.

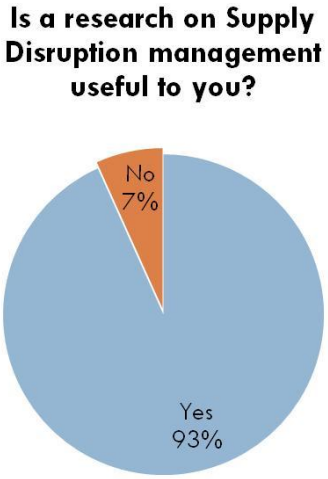


- Almost 90% of the respondents feel that they **don't receive the materials on time** from their suppliers and therefore quiet high amount of their time is spent on follow up with vendors.





- More than 70% of the respondents **experienced problems in their receipt of incoming materials** in last 12 months. This is one of the reasons of higher amount of vendor follow up and ultimately the gap between demand and supply.



- More than 90% of the respondents are of the opinion that **a research in supply risk management is useful** to them.

Survey was followed by a literature review. **Snapshots of the Literature Review are:**

- The issue of **Supply chain risk** has only relatively recently been addressed and where the approach to risk management appears to be **underdeveloped. -** Uta Juttner (2003), Tang (2006),Omera Khan, Bernard (2008) –
- Popular view is that since the firm has a greater control on the supplier, supply side uncertainty can be handled by choosing appropriate partners in the chain. However, certain events in the recent past have **underscored the need to consider supply uncertainty. There is limited literature on inbound supply risk.-** George A. Zsidisin (2004) ,Janat Shah (2009)
- Since nobody gets credit for fixing problems that never happened - **firms do not invest in supply risk assessment exercise** - *Christopher S. Tang (2006)*

- It is the right thing to look after **supply chain risks** but it's a low probability, probably won't happen and therefore is **not rewarded** for doing so. If reward system rewards only those who achieve their objectives irrespective of due attention to risks, then managers will strive to achieve objectives at the cost of disproportionate risks - *Illa Manuj and John Mentzer (2008)*

4. AIMS AND OBJECTIVES OF THE STUDY:

The aim of this study is to research the Supply Risk Management practices in the Indian manufacturing sector and analyse any scope for improvement.

The purpose of the study is:

- To understand the **importance of Enterprise supply risk management** of manufacturing sector of India
- To examine **key drivers of supply risks** is this sector
- To develop a methodology **to prioritize risk pertaining to Operational variation and interruption and Tactical difference and disorder of Raw Materials and/or Components**
  - Identify a methodology to classify risks pertaining to quality, quantity, price and time.
  - Define a system to judge the likelihood of these risks
  - Suggest a technique to assign weights to these risks and rank them.
  - Use the tools like FMEA / ABC / Fault Tree Analysis / Value Stream mapping / Cost time profiling / Supply Chain Response Matrix, etc. individually or in combination as may be applicable
- To develop a procedure **to capture heterogeneity of suppliers** and figure out its **impact on the manufacturing process**.
  - Each supplier is unique having some strength say cost effective quality supplies and some weakness say not meeting the delivery schedules.
  - Formulate a system to assess risks of different suppliers.

- Devise a technique to measure the total impact of these risks on the manufacturing process.
- Verify the possibility of tradeoffs.

- To develop **a holistic model** of Supply Risk assessment Program based on CEAM approach
  - Classification of risks (C) - Identification of relevant supply risks
  - Estimation of likelihood of risks (E) - Examine the probability of a particular risk
  - Assessing the potential loss (A) - Measuring the likely impact of the risk
  - Mitigation of risks (M) - Develop a framework to overcome uncertainty which can be worked out through a combination of
    - Risk Retention - How much risk a firm is prepared to accept
    - Risk Transfer - e.g. Insurance
    - Risk Control - Processes and procedures
    - Risk Avoidance – Precautionary measures
- To assess the applicability or generalizability of the developed model for three or four levels, i.e.,
  - Tier II Supplier
  - Tier I supplier
  - Manufacturer
  - Wholesaler

5. RESEARCH METHODOLOGY:

The following parameters were identified in the initial research. The parameters that are proposed to be included in the scope of further research are highlighted below.

- Classification of the Suppliers

Classification 1	Classification 2	Classification 3	Classification 4
Raw Materials	Government	Monopoly Supplier	Single sourcing
Components	Ordinary / Open Market	Generic Item supplier	Multiple sourcing
Consumables	Local		Network sourcing
MRO	Foreign		
CAPEX			
Services			
Manufacturer			

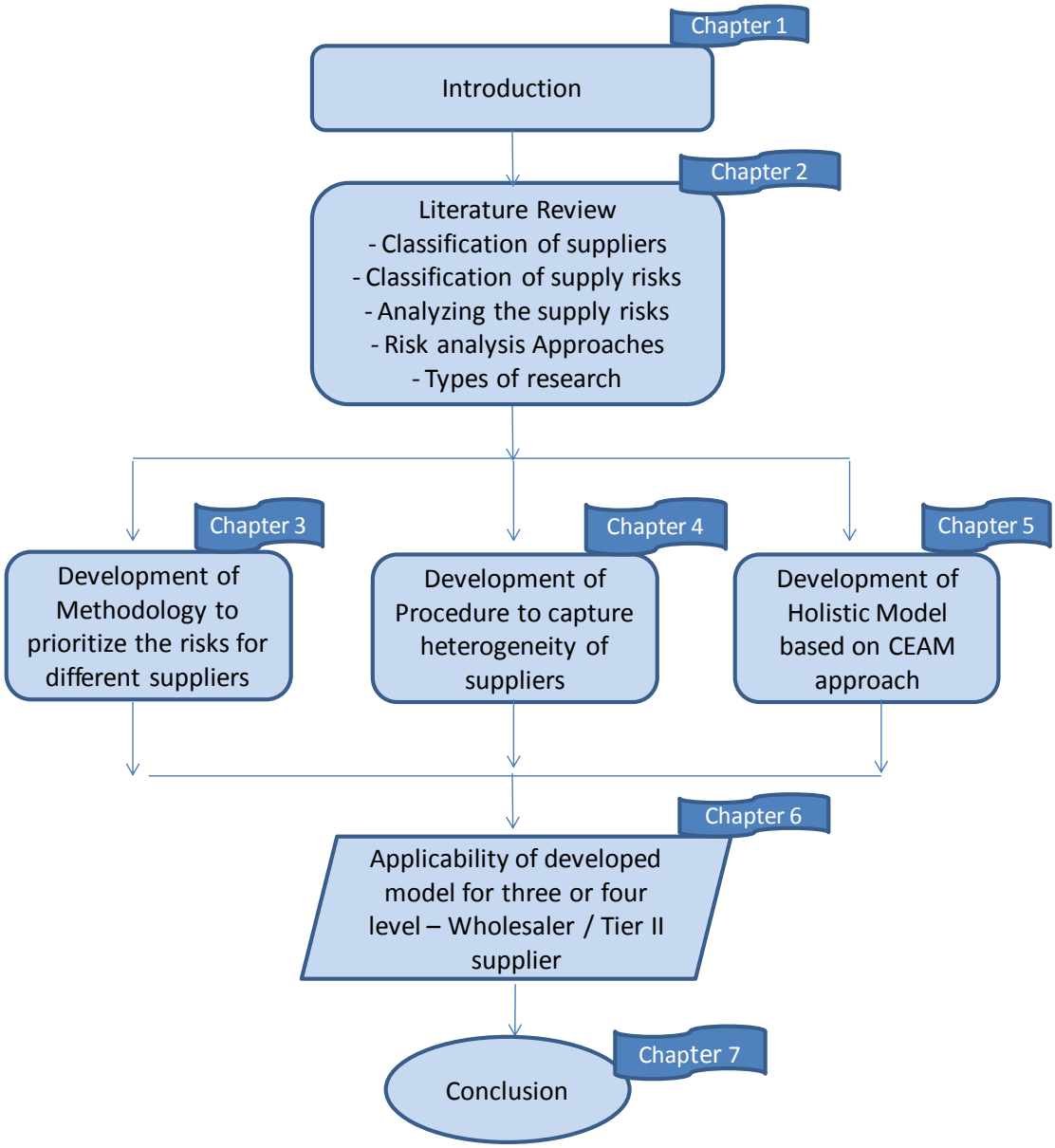
- Classification of Supply Risks

	Minor Changes	Radical Transformation	Irrecoverable
Top Level - Uncontrollable	Strategic Deviation	Strategic Disruption	Strategic Disaster
Middle Level - Deliberate	Tactical Variation	Tactical Interruption	Tactical Catastrophe
Day to day - Controllable	Operational Difference	Operational Disorder	Operational Failure

- Risk Analysis Approaches so far
  - Behavioural
  - Strategic
  - Financial
- Types of Research
  - Analytical
  - Empirical
  - Applied

6. SCOPE OF THE STUDY:

- ☐ Upstream Supply Risk Management is proposed to be studied
- ☐ Planned to consider risks pertaining to only Tactical variations and interruption as well as Operational difference and disorder.
- ☐ Suppliers of Raw materials and / or Components is intended to be considered
- ☐ Analytical Research Methodology is projected to be followed
- ☐ Suitable Risk Assessment Approach will be studied.
- ☐ Overview of Thesis


Chapter 1
Introduction
Chapter 2
Literature Review
- Classification of suppliers
- Classification of supply risks
- Analyzing the supply risks
- Risk analysis Approaches
- Types of research
Chapter 3
Development of Methodology to prioritize the risks for different suppliers
Chapter 4
Development of Procedure to capture heterogeneity of suppliers
Chapter 5
Development of Holistic Model based on CEAM approach
Chapter 6
Applicability of developed model for three or four level – Wholesaler / Tier II supplier
Chapter 7
Conclusion

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